

Melanoma is a malignant tumour develops from melanocytes with a high incidence mortality rate. There are about 1300 new cases recorded each year in Polish population, of which only 20% of patients are cured because of late diagnosis. In stage III and IV metastatic melanoma (MM) is the most malignant tumour resistant to conventional treatment. The current approach in the treatment of metastatic melanoma is targeted therapy. It works by targeting specific genes which suppress the action of hyperactivated or mutated proteins that stimulate signal transduction in the cell. Unfortunately, the therapy does not cure due to developing of the drug resistance in patients but increases the lifespan of patients with MM by 2-5 years. Therefore new molecular targets in melanoma are still under investigation.

Our research focuses on understanding the role of the RIPK4 kinase in melanoma development and comparison with few studies published so far that describe the various roles of this protein in non-melanoma skin cancer. We want to know if RIPK4 kinase is involved in the processes of melanoma progression and invasiveness, and thus to study signaling pathways controlling the motility, growth and survival of melanoma cells with a modified level of this protein. The study will be carried out in an *in vitro* model. Additionally, we are going to perform a bioinformatic analysis to determine whether RIPK4 is important in the pathology of metastatic melanoma. We plan to publish the obtained results in a high impact international journal. The study may serve as a basis for further research on the possibility to use RIP4 kinase for melanoma therapy.